OMRON

Machine Automation Controller

NX-series

Data Reference Manual

NX-□□□□□□

SYSMAC
always in control

W525-E1-03

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Introduction

Thank you for purchasing a NX-series.

This manual lists data that is required to configure systems, such as the power consumptions and weights of the NX Units that configure Slave Terminals.

Use this manual when considering the Unit configuration of Slave Terminals on paper.

Keep this manual in a safe place where it will be available for reference during operation.

Intended Audience

This manual is intended for the following personnel, who must also have knowledge of electrical systems (an electrical engineer or the equivalent).

- Personnel in charge of introducing FA systems.
- Personnel in charge of designing FA systems.
- Personnel in charge of installing and maintaining FA systems.
- Personnel in charge of managing FA systems and facilities.

For programming, this manual is intended for personnel who understand the programming language specifications in international standard IEC 61131-3 or Japanese standard JIS B3503.

Applicable Products

This manual covers the following product.

- NX-series

  Communications Coupler Units
  EtherCAT Coupler Unit
  Digital I/O Units
  Analog I/O Units
  Position Interface Units
  System Units
  Safety Control Units

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Relevant Manuals

To use the NX-series, you must refer to the manuals for all related products.

Read all of the manuals that are relevant to your system configuration and application before you use the NX-series.

Most operations are performed from the Sysmac Studio Automation Software. Refer to the *Sysmac Studio Version 1 Operation Manual* (Cat. No. W504) for information on the Sysmac Studio.

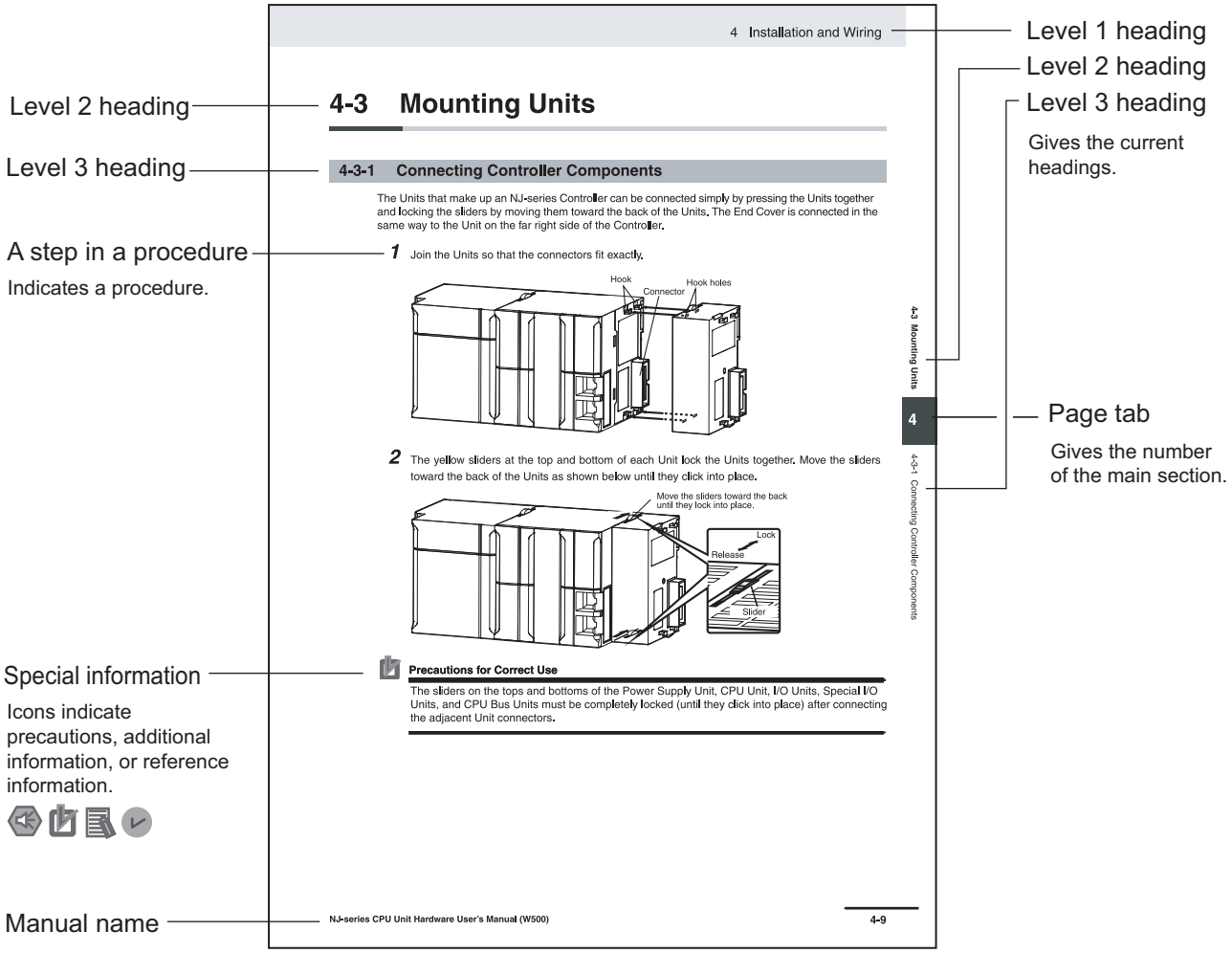
	NJ Series					NX Series						
						Communications Coupler Unit	NX Units					All Units
	NJ-series CPU Unit Hardware User's Manual	NJ-series CPU Unit Software User's Manual	NJ-series CPU Unit Motion Control User's Manual	NJ-series CPU Unit Built-in EtherCAT Port User's Manual	NJ-series Troubleshooting Manual	NX-series EtherCAT Coupler Unit User's Manual	NX-series Digital I/O Units User's Manual	NX-series Analog I/O Units User's Manual	NX-series System Units User's Manual	NX-series Position Interface Units User's Manual	NX-series Safety Control Unit User's Manual	NX-series Data Reference Manual
Learning about the NX-series Units												
Specifications						●	●	●	●	●	●	
Functionality						●	●	●	●	●	●	
Application procedures						●	●	●	●	●	●	
Learning about Slave Terminals						●						
Slave Terminal specifications						●						
System configuration						●						
Rules on building systems						●						
Slave Terminal application procedures						●						
Slave Terminal installation procedures						●						
Support Software connection procedures						●						
Procedure to estimate Slave Terminal performance						●						
Procedures for using safety control systems with Slave Terminals											●	
Procedures for estimating performance of safety control systems with Slave Terminals											●	

	NJ Series					NX Series						
						Communications Coupler Unit	NX Units					All Units
	NJ-series CPU Unit Hardware User's Manual	NJ-series CPU Unit Software User's Manual	NJ-series CPU Unit Motion Control User's Manual	NJ-series CPU Unit Built-in EtherCAT Port User's Manual	NJ-series Troubleshooting Manual	NX-series EtherCAT Coupler Unit User's Manual	NX-series Digital I/O Units User's Manual	NX-series Analog I/O Units User's Manual	NX-series System Units User's Manual	NX-series Position Interface Units User's Manual	NX-series Safety Control Unit User's Manual	NX-series Data Reference Manual
Using NX-series Units with NJ-series Controllers												
Using a Slave Terminal connected to the built-in EtherCAT port on an NJ-series CPU Unit	●	●		●		●						
Procedures for performing motion control with Position Interface Units			●							●		
Troubleshooting												
Managing errors for the overall NJ-series Controller					●							
Troubleshooting Slave Terminals and Communications Coupler Units						●						
Troubleshooting NX Units							●	●	●	●	●	
Performing Unit maintenance						●	●	●	●	●	●	
Referencing data lists for NX Unit power consumptions, weights, etc.												●

Manual Structure

Page Structure and Icons

The following page structure and icons are used in this manual.


4 Installation and Wiring
Level 1 heading
Level 2 heading
Level 3 heading
Gives the current headings.
Level 2 heading
4-3 Mounting Units
Level 3 heading
4-3-1 Connecting Controller Components
The Units that make up an NJ-series Controller can be connected simply by pressing the Units together and locking the sliders by moving them toward the back of the Units. The End Cover is connected in the same way to the Unit on the far right side of the Controller.
A step in a procedure
Indicates a procedure.
1 Join the Units so that the connectors fit exactly.
Hook
Connector
Hook holes
2 The yellow sliders at the top and bottom of each Unit lock the Units together. Move the sliders toward the back of the Units as shown below until they click into place.
Move the sliders toward the back until they lock into place.
Lock
Release
Slider
Page tab
Gives the number of the main section.
4
4-3-1 Connecting Controller Components
Special information
Icons indicate precautions, additional information, or reference information.
Precautions for Correct Use
The sliders on the tops and bottoms of the Power Supply Unit, CPU Unit, I/O Units, Special I/O Units, and CPU Bus Units must be completely locked (until they click into place) after connecting the adjacent Unit connectors.
Manual name
NJ-series CPU Unit Hardware User's Manual (W500)
4-9

Note This illustration is provided only as a sample. It may not literally appear in this manual.

Special Information

Special information in this manual is classified as follows:

Precautions for Safe Use

Precautions on what to do and what not to do to ensure safe usage of the product.

Precautions for Correct Use

Precautions on what to do and what not to do to ensure proper operation and performance.

Additional Information

Additional information to read as required.

This information is provided to increase understanding or make operation easier.

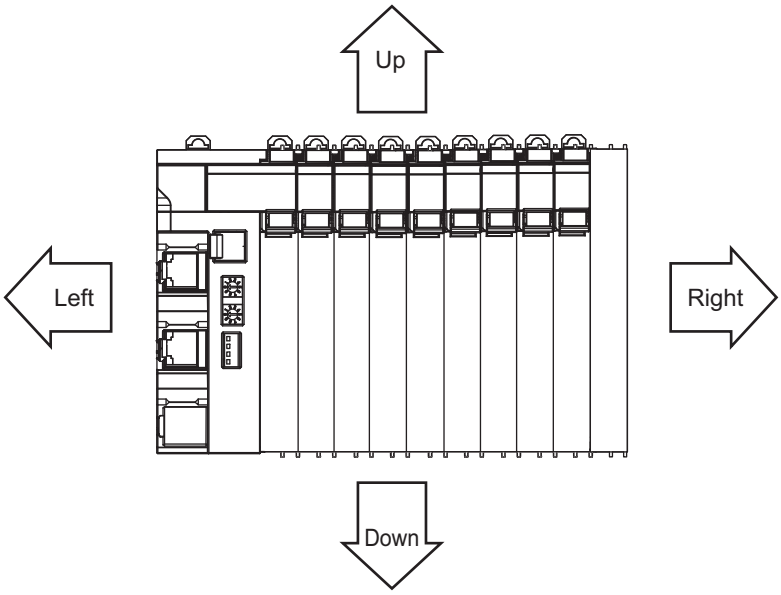
Version Information

Information on differences in specifications and functionality for CPU Units and EtherCAT Coupler Units with different unit versions and for different versions of the Sysmac Studio is given.

Note References are provided to more detailed or related information.

Precaution on Terminology

- In this manual, “download” refers to transferring data from the Sysmac Studio to the physical Controller and “upload” refers to transferring data from the physical Controller to the Sysmac Studio.
  For the Sysmac Studio, synchronization is used to both upload and download data. Here, “synchronize” means to automatically compare the data for the Sysmac Studio on the computer with the data in the physical Controller and transfer the data in the direction that is specified by the user.
- In this manual, the directions in relation to the Units are given in the following figure, which shows upright installation.



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Errors and Omissions

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

Safety Precautions

Refer to the user's manual of the Unit to be used for safety precautions.

Precautions for Safe Use

Refer to the user's manual of the Unit to be used for precautions for safe use.

Precautions for Correct Use

Refer to the user's manual of the Unit to be used for precautions for correct use.

Regulations and Standards

Refer to the user's manual of the Unit to be used for precautions for information on regulations and standards.

Related Manuals

The following manuals are related to the NJ-series Controllers. Use these manuals for reference.

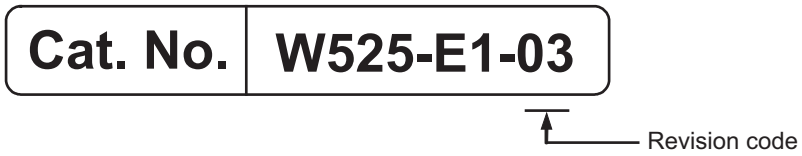
Manual name	Cat. No.	Model numbers	Application	Description
NX-series Data Reference Manual	W525	NX-□□□□□□	Referencing lists of the data that is required to configure systems with NX-series Units	Lists of the power consumptions, weights, and other NX Unit data that is required to configure systems with NX-series Units are provided.
NX-series Digital I/O Units User's Manual	W521	NX-ID□□□□ NX-IA□□□□ NX-OC□□□□ NX-OD□□□□	Learning how to use NX-series Digital I/O Units	The hardware, setup methods, and functions of the NX-series Digital I/O Units are described.
NX-series Analog I/O Units User's Manual	W522	NX-AD□□□□ NX-DA□□□□ NX-TS□□□□	Learning how to use NX-series Analog I/O Units and Temperature Input Units	The hardware, setup methods, and functions of the NX-series Analog I/O Units and Temperature Input Units are described.
NX-series System Units User's Manual	W523	NX-PD1□□□ NX-PF0□□□ NX-PC0□□□ NX-TBX01	Learning how to use NX-series System Units	The hardware and functions of the NX-series System Units are described.
NX-series Position Interface Units User's Manual	W524	NX-EC0□□□ NX-ECS□□□ NX-PG0□□□	Learning how to use NX-series Position Interface Units	The hardware, setup methods, and functions of the NX-series Incremental Encoder Input Units, SSI Input Units, and Pulse Output Unit are described.
NX-series Safety Control Unit User's Manual	Z930	NX-SL□□□□ NX-SI□□□□ NX-SO□□□□	Learning how to use NX-series Safety Control Units	The hardware, setup methods, and functions of the NX-series Safety Control Units are described.
NX-series Safety Control Unit Instructions Reference Manual	Z931	NX-SL□□□□	Learning about the specifications of instructions for the Safety CPU Unit.	The instructions for the Safety CPU Unit are described. When programming, use this manual together with the *NX-series Safety Control Unit User's Manual* (Cat. No. Z930).
Sysmac Studio Version 1 Operation Manual	W504	SYSMAC-SE2□□□	Learning about the operating procedures and functions of the Sysmac Studio.	Describes the operating procedures of the Sysmac Studio.
NJ-series Troubleshooting Manual	W503	NJ501-□□□□ NJ301-□□□□	Learning about the errors that may be detected in an NJ-series Controller.	Concepts on managing errors that may be detected in an NJ-series Controller and information on individual errors are described. Use this manual together with the *NJ-series CPU Unit Hardware User's Manual* (Cat. No. W500) and *NJ-series CPU Unit Software User's Manual* (Cat. No. W501).

Manual name	Cat. No.	Model numbers	Application	Description
NX-series EtherCAT® Coupler Unit User's Manual	W519	NX-ECC201 NX-ECC202	Leaning how to use an NX-series EtherCAT Coupler Unit and EtherCAT Slave Terminals	The following items are described: the overall system and configuration methods of an EtherCAT Slave Terminal (which consists of an NX-series EtherCAT Coupler Unit and NX Units), and information on hardware, setup, and functions to set up, control, and monitor NX Units through EtherCAT.
NJ-series CPU Unit Hardware User´s Manual	W500	NJ501-□□□□ NJ301-□□□□	Learning the basic specifications of the NJ-series CPU Units, including introductory information, designing, installation, and maintenance. Mainly hardware information is provided.	An introduction to the entire NJ-series system is provided along with the following information on the CPU Unit. • Features and system configuration • Overview • Part names and functions • General specifications • Installation and wiring • Maintenance and Inspection Use this manual together with the *NJ-series CPU Unit Software User's Manual* (Cat. No. W501).
NJ-series CPU Unit Software User's Manual	W501	NJ501-□□□□ NJ301-□□□□	Learning how to program and set up an NJ-series CPU Unit. Mainly software information is provided.	The following information is provided on an NJ-series CPU Unit. • CPU Unit operation • CPU Unit features • Initial settings • Programming based on IEC 61131-3 language specifications Use this manual together with the *NJ-series CPU Unit Hardware User's Manual* (Cat. No. W500).
NJ-series CPU Unit Built-in EtherCAT® Port User's Manual	W505	NJ501-□□□□ NJ301-□□□□	Using the built-in EtherCAT port on an NJ-series CPU Unit.	Information on the built-in EtherCAT port is provided. This manual provides an introduction and provides information on the configuration, features, and setup. Use this manual together with the *NJ-series CPU Unit Hardware User's Manual* (Cat. No. W500) and *NJ-series CPU Unit Software User's Manual* (Cat. No. W501).
NJ-series CPU Unit Motion Control User's Manual	W507	NJ501-□□□□ NJ301-□□□□	Learning about motion control settings and programming concepts.	The settings and operation of the CPU Unit and programming concepts for motion control are described. When programming, use this manual together with the *NJ-series CPU Unit Hardware User's Manual* (Cat. No. W500) and *NJ-series CPU Unit Software User's Manual* (Cat. No. W501).

Manual name	Cat. No.	Model numbers	Application	Description
NJ-series Instructions Reference Manual	W502	NJ501-□□□□ NJ301-□□□□	Learning detailed specifications on the basic instructions of an NJ-series CPU Unit.	The instructions in the instruction set (IEC 61131-3 specifications) are described. When programming, use this manual together with the *NJ-series CPU Unit Hardware User's Manual* (Cat. No. W500) and *NJ-series CPU Unit Software User's Manual* (Cat. No. W501).
NJ-series Motion Control Instructions Reference Manual	W508	NJ501-□□□□ NJ301-□□□□	Learning about the specifications of the motion control instructions.	The motion control instructions are described. When programming, use this manual together with the *NJ-series CPU Unit Hardware User's Manual* (Cat. No. W500), *NJ-series CPU Unit Software User's Manual* (Cat. No. W501) and *NJ-series CPU Unit Motion Control User's Manual* (Cat. No. W507).

Revision History

A manual revision code appears as a suffix to the catalog number on the front and back covers of the manual.



Revision code	Date	Revised content
01	April 2013	Original production
02	June 2013	• Added models on time stamp refreshing • Added Safety Control Units • Corrected mistakes
03	September 2013	• Added new models and made changes accompanying the upgrade to the unit version in September 2013 • Corrected mistakes

Sections in this Manual

1 Data List

A Appendices

1

Data List

This section provides the data lists for Communications Coupler Units and NX Units.

1-1 How to Read the Data List 1-2

1-2 Communications Coupler Units 1-4

1-2-1 EtherCAT Coupler Unit 1-4

1-3 Digital I/O Units 1-5

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1-4-3 Temperature Input Units 1-14

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1-5-2 SSI Input Units 1-17

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1-6-1 Additional NX Unit Power Supply Unit 1-19

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1-7-1 Safety CPU Unit 1-22

1-7-2 Safety Input Units 1-23

1-7-3 Safety Output Units 1-24

1-1 How to Read the Data List

This data list is described with the following format.

Example: For Digital Input Units

Model	Unit configuration data								Summary specifications				
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	Input current [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of points	Internal I/O common	Rated input voltage	I/O refreshing method	ON/OFF response time

The items for this format are explained below.

● Unit Configuration Data

The Unit configuration data is the required data to create the Unit configuration of Slave Terminal.

Create the Unit configuration so that the total value of the data for which the maximum value is defined does not exceed the maximum value of the Slave Terminal.

Refer to the user's manual for the Communications Coupler Unit on the maximum value for each data.

Item	Description
NX Unit power consumption	The power consumption of the NX Unit power supply of the Unit.
Current consumption from I/O power supply	The current consumption from I/O power supply of the Unit. The load current of any external connection load, the input current of the Input Units, and the current consumption of any connected external devices are not included.
Input current	The input current of the Unit at the rated voltage. Only the DC Input Units and AC Input Units have this item.
I/O power supply method	The method for supplying I/O power supply for the Unit. The supply method depends on each Unit. The power is supplied from the NX bus or the external source. NX bus: Supply from the NX bus External: Supply from external source The Communications Coupler Unit and the Additional I/O Power Supply Unit do not have this item.
Weight	The weight of the Unit.
Width	The width of the Unit. The unit is "mm".
I/O data size	The I/O data size of default value that the Unit consumes. The unit is byte. However, the unit is bit for some Digital I/O Units. In this case, the unit is given in the table. It is described according to the input/output sequence.
Number of I/O entry mappings	The number of I/O entry mappings of default value that the Unit consumes. It is described according to the input/output sequence.

Summary Specifications

The summary specifications of the Units to configure the Slave Terminal.

Use this as a guide to select the Unit model when you consider the Unit configuration.

The items in the Summary Specifications depend on the Unit type. The meaning of each item is explained for each Unit type.

1-2 Communications Coupler Units

The following shows the Communications Coupler Units data.

1-2-1 EtherCAT Coupler Unit

● Items in the Summary Specifications

Item	Description
Rated power supply voltage	The rated voltage that is supplied to the Unit.
NX Unit power supply capacity	The amount of power that the Unit can supply to the NX Units.

● Data List

Model	Unit configuration data						Summary specifications	
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Rated power supply voltage	NX Unit power supply capacity *1
NX-ECC201	1.45	10	150	46	34/0	2/0	24 VDC	10 W max.
NX-ECC202								

*1. The NX Unit power supply capacity is restricted by the temperature or installation orientation. For details, refer to *A-1 NX Unit Power Supply Capacity* on page A-2.

1-3 Digital I/O Units

The following shows the Digital I/O Units data.

1-3-1 Digital Input Units

DC Input Units (Screwless Clamping Terminal Block, 12 mm Width)

● Items in the Summary Specifications

Item	Description
Number of points	The number of input points provided by the Unit.
Internal I/O common	The polarity of the input devices that are connected to the Unit. NPN connection and PNP connection are available.
Rated input voltage	The rated input voltage of the Unit.
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Free-Run refreshing, synchronous I/O refreshing and input refreshing with input changed time are available. In this table, the following abbreviations are used. Free: Free-Run refreshing Sync: Switching synchronous I/O refreshing and Free-Run refreshing Changed time: Input refreshing with input changed time
ON/OFF response time	The delay time for which the status change of the input terminals reaches the internal circuit of the Unit. The input filter time is not included. It is described according to the ON/OFF sequence.

Data List

Model	Unit configuration data								Summary specifications				
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	Input current [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of points	Internal I/O common	Rated input voltage	I/O refreshing method	ON/OFF response time
NX-ID3317	0.50	No consumption	6	NX bus	65	12	4/0 bits	1/0	4 points	NPN	12 to 24 VDC	Sync	20/400 µs max.
NX-ID3343	0.55	30	3.5								24 VDC		100/ 100 ns max.
NX-ID3344							34/0					Changed time	
NX-ID3417	0.50	No consumption	6				4/0 bits			PNP	12 to 24 VDC	Sync	20/400 µs max.
NX-ID3443	0.55	30	3.5								24 VDC		100/ 100 ns max.
NX-ID3444							34/0					Changed time	
NX-ID4342	0.50	No consumption					2/0		8 points	NPN		Sync	20/400 µs max.
NX-ID4442										PNP			
NX-ID5342	0.55		2.5						16 points	NPN			
NX-ID5442										PNP			

AC Input Units (Screwless Clamping Terminal Block, 12 mm Width)

● Items in the Summary Specifications

Item	Description
Number of points	The number of input points provided by the Unit.
Internal I/O common	The polarity of the input devices that are connected to the Unit. NPN connection and PNP connection are available.
Rated input voltage	The rated input voltage of the Unit.
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Free-Run refreshing, synchronous I/O refreshing and input refreshing with input changed time are available. In this table, the following abbreviations are used. Free: Free-Run refreshing Sync: Switching synchronous I/O refreshing and Free-Run refreshing Changed time: Input refreshing with input changed time
ON/OFF response time	The delay time for which the status change of the input terminals reaches the internal circuit of the Unit. The input filter time is not included. It is described according to the ON/OFF sequence.

● Data List

Model	Unit configuration data								Summary specifications				
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	Input current [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of points	Internal I/O common	Rated input voltage	I/O refreshing method	ON/OFF response time
NX-IA3117	0.50	No consumption	9 (200 VAC/50 Hz) 11 (200 VAC/60 Hz)	External	60	12	4/0 bits	1/0	4 points	No polarity	200 to 240 VAC	Free	10/40 ms max.

1-3-2 Digital Output Units

Transistor Output Units (Screwless Clamping Terminal Block, 12 mm Width)

● Items in the Summary Specifications

Item	Description
Number of points	The number of output points provided by the Unit.
Internal I/O common	The polarity of the input devices that are connected to the Unit. NPN connection and PNP connection are available.
Maximum load current	The maximum output load current of the Unit. Specifications for each output point and for the Unit are described.
Rated voltage	The rated output voltage of the Unit.
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Free-Run refreshing, synchronous I/O refreshing and output refreshing with specified time stamp are available. In this table, the following abbreviations are used. Free: Free-Run refreshing Sync: Switching synchronous I/O refreshing and Free-Run refreshing Specified time: Output refreshing with specified time stamp
ON/OFF response time	The delay time for which data in the internal circuit is reflected in the state of output elements of the Unit. It is described according to the ON/OFF sequence.

Data List

Model	Unit configuration data							Summary specifications					
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of points	Internal I/O common	Maximum load current	Rated voltage	I/O refreshing method	ON/OFF response time
NX-OD2154	0.50	30	NX bus	70	12	2/18	1/1	2 points	NPN	0.5 A/point, 1 A/Unit	24 VDC	Specified time	300/300 ns max.
NX-OD2258		40							PNP				
NX-OD3121	0.55	10				0/4 bits	0/1	4 points	NPN	0.5 A/point, 2 A/Unit	12 to 24 VDC	Sync	0.1/0.8 ms max.
NX-OD3153	0.50	30									24 VDC		300/300 ns max.
NX-OD3256	0.55	20							PNP				0.5/1.0 ms max.
NX-OD3257	0.50	40											300/300 ns max.
NX-OD4121	0.55	10				0/2		8 points	NPN	0.5 A/point, 4 A/Unit	12 to 24 VDC		0.1/0.8 ms max.
NX-OD4256	0.65	30							PNP		24 VDC		0.5/1.0 ms max.
NX-OD5121		20						16 points	NPN		12 to 24 VDC		0.1/0.8 ms max.
NX-OD5256	0.70	40							PNP		24 VDC		0.5/1.0 ms max.

Relay Output Units (Screwless Clamping Terminal Block, 12 mm Width)

● Items in the Summary Specifications

Item	Description
Number of points	The number of output points provided by the Unit.
Relay type	The type of relay that is connected to the Unit. There are N.O. and N.O. + N.C.
Maximum switching capacity	The maximum value of switchable current of the relay that is connected to the Unit.
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Free-Run refreshing and synchronous I/O refreshing are available. In this table, the following abbreviations are used. Free: Free-Run refreshing Sync: Switching synchronous I/O refreshing and Free-Run refreshing
ON/OFF response time	The delay time for which data in the internal circuit is reflected in the state of output elements of the Unit. It is described according to the ON/OFF sequence.

● Data List

Model	Unit configuration data							Summary specifications				
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of points	Relay type	Maximum switching capacity	I/O refreshing method	ON/OFF response time
NX-OC2633	0.80	No consumption	External	65	12	0/2 bit	0/1	2 points, independent contacts	N.O.	250 VAC/2 A (cosΦ = 1), 250 VAC/2 A (cosΦ = 0.4), 24 VDC/2 A, 4 A/Unit	Free	15/15 ms max.
NX-OC2733	0.95			70					N.O. + N.C.			

1-4 Analog I/O Units

The following shows the Analog I/O Units data.

1-4-1 Analog Input Units

Analog Input Units (Screwless Clamping Terminal Block, 12 mm Width)

● Items in the Summary Specifications

Item	Description
Number of points	The number of analog input points provided by the Unit.
Input range	The input range of the Unit.
Resolution	The resolution of converted values of the Unit.
Input method	The analog signal input method provided by the Unit. Single-ended input and differential input are available. In this table, the following abbreviations are used. Single: Single-ended input Diff: Differential input
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Free-Run refreshing and synchronous I/O refreshing are available. In this table, the following abbreviations are used. Free: Free-Run refreshing Sync: Switching synchronous I/O refreshing and Free-Run refreshing
Conversion time	The time required per input to convert analog input signals of the Unit to the converted values.

Data List

Model	Unit configuration data							Summary specifications					
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of points	Input range	Resolution	Input method	I/O refreshing method	Conversion time
NX-AD2203	0.90	No consumption	NX bus	70	12	4/0	1/0	2 points	4 to 20 mA	1/8000	Single	Free	250 µs
NX-AD2204			No supply								Diff		
NX-AD2208										1/30000		Sync	10 µs
NX-AD2603	1.05		NX bus						-10 to +10 V	1/8000	Single	Free	250 µs
NX-AD2604			No supply								Diff		
NX-AD2608										1/30000		Sync	10 µs
NX-AD3203	0.90		NX bus			8/0		4 points	4 to 20 mA	1/8000	Single	Free	250 µs
NX-AD3204			No supply								Diff		
NX-AD3208	0.95									1/30000		Sync	10 µs
NX-AD3603	1.10		NX bus						-10 to +10 V	1/8000	Single	Free	250 µs
NX-AD3604			No supply								Diff		
NX-AD3608										1/30000		Sync	10 µs
NX-AD4203	1.05		NX bus			16/0		8 points	4 to 20 mA	1/8000	Single	Free	250 µs
NX-AD4204			No supply								Diff		
NX-AD4208	1.10									1/30000		Sync	10 µs
NX-AD4603	1.15		NX bus						-10 to +10 V	1/8000	Single	Free	250 µs
NX-AD4604			No supply								Diff		
NX-AD4608										1/30000		Sync	10 µs

1-4-2 Analog Output Units

Analog Output Units (Screwless Clamping Terminal Block, 12 mm Width)

● Items in the Summary Specifications

Item	Description
Number of points	The number of analog output points provided by the Unit.
Output range	The output range of the Unit.
Resolution	The resolution of converted values of the Unit.
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Free-Run refreshing and synchronous I/O refreshing are available. In this table, the following abbreviations are used. Free: Free-Run refreshing Sync: Switching synchronous I/O refreshing and Free-Run refreshing.
Conversion time	The time required per output to convert analog output signals of the Unit to the converted values.

● Data List

Model	Unit configuration data							Summary specifications				
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of points	Output range	Resolution	I/O refreshing method	Conversion time
NX-DA2203	1.75	No consumption	NX bus	70	12	0/4	0/1	2 points	4 to 20 mA	1/8000	Free	250 µs
NX-DA2205										1/30000	Sync	10 µs
NX-DA2603	1.10								-10 to +10 V	1/8000	Free	250 µs
NX-DA2605										1/30000	Sync	10 µs
NX-DA3203	1.80					0/8		4 points	4 to 20 mA	1/8000	Free	250 µs
NX-DA3205										1/30000	Sync	10 µs
NX-DA3603	1.25								-10 to +10 V	1/8000	Free	250 µs
NX-DA3605										1/30000	Sync	10 µs

1-4-3 Temperature Input Units

Temperature Input Units (Screwless Clamping Terminal Block, 12 mm Width)

● Items in the Summary Specifications

Item	Description
Number of points	The number of temperature input points provided by the Unit.
Input type	The temperature input type of the Unit.
Conversion time	The time required to convert temperature input signals of the Unit to temperature data.
Resolution	The resolution of the measured values for the Unit. It is defined in °C.
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Only Free-Run refreshing method is available. In this table, the following abbreviation is used. Free: Free-Run refreshing

● Data List

Model	Unit configuration data							Summary specifications				
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of points	Input type	Conversion time	Resolution	I/O refreshing method
NX-TS2101	0.90	No consumption	No supply	70	12	4/0	1/0	2 points	Thermocouple	250 ms	0.1°C max. *1	Free
NX-TS2102	0.80									10 ms	0.01°C max.	
NX-TS2104						8/0				60 ms	0.001°C max.	
NX-TS2201	0.90					4/0			Resistance thermometer	250 ms	0.1°C max.	
NX-TS2202	0.75								Resistance thermometer	10 ms	0.01°C max.	
NX-TS2204						8/0			Resistance thermometer	60 ms	0.001°C max.	

*1. The resolution is 0.2°C max. when the input type is R, S, or W.

Temperature Input Units (Screwless Clamping Terminal Block, 24 mm Width)

● Items in the Summary Specifications

Item	Description
Number of points	The number of temperature input points provided by the Unit.
Input type	The temperature input type of the Unit.
Conversion time	The time required to convert temperature input signals of the Unit to temperature data.
Resolution	The resolution of the measured values for the Unit. It is defined in °C.
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Only Free-Run refreshing method is available. In this table, the following abbreviation is used. Free: Free-Run refreshing

● Data List

Model	Unit configuration data							Summary specifications				
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of points	Input type	Conversion time	Resolution	I/O refreshing method
NX-TS3101	1.30	No consumption	No supply	140	24	8/0	1/0	4 points	Thermocouple	250 ms	0.1°C max. *1	Free
NX-TS3102	1.10									10 ms	0.01°C max.	
NX-TS3104						16/0				60 ms	0.001°C max.	
NX-TS3201	1.30					8/0			Resistance thermometer	250 ms	0.1°C max.	
NX-TS3202	1.05			130					Resistance thermometer	10 ms	0.01°C max.	
NX-TS3204						16/0			Resistance thermometer	60 ms	0.001°C max.	

*1. The resolution is 0.2°C max. when the input type is R, S, or W.

1-5 Position Interface Units

The following shows the Position Interface Units data.

1-5-1 Incremental Encoder Input Units

● Items in the Summary Specifications

Item	Description
Number of channels	The number of encoder input channels of the Unit.
Number of external inputs	The number of external inputs of the Unit.
Maximum response frequency	The maximum frequency of the encoder input.
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Free-Run refreshing and synchronous I/O refreshing are available. In this table, the following abbreviations are used. Free: Free-Run refreshing Sync: Switching synchronous I/O refreshing and Free-Run refreshing

● Data List

Model	Unit configuration data							Summary specifications				
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of channels	Number of external inputs	Maximum response frequency	I/O refreshing method	Remarks
NX-EC0122	0.95	0	NX bus	70	12	18/4	1/1	1(PNP)	3(PNP)	500 kHz	Sync	24 V voltage input
NX-EC0222				65		36/8	2/2	2(PNP)	None			
NX-EC0142	1.05	30		130	24	18/4	1/1	1	3(PNP)	4 MHz		Line receiver input

1-5-2 SSI Input Units

● Items in the Summary Specifications

Item	Description
Number of channels	The number of SSI communications channels of the Unit.
Number of external inputs	The number of external inputs of the Unit.
Maximum baud rate	The maximum baud rate (Maximum frequency of synchronous clock) that you can use for SSI communications.
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Free-Run refreshing and synchronous I/O refreshing are available. In this table, the following abbreviations are used. Free: Free-Run refreshing Sync: Switching synchronous I/O refreshing and Free-Run refreshing

● Data List

Model	Unit configuration data							Summary specifications			
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of channels	Number of external inputs	Maximum baud rate	I/O refreshing method
NX-ECS112	0.85	20	NX bus	65	12	10/0	1/0	1	None	2 MHz	Sync
NX-ECS212	0.90	30				20/0	2/0	2			

1-5-3 Pulse Output Units

● Items in the Summary Specifications

Item	Description
Number of channels	The number of pulse output channels of the Unit.
Number of external inputs	The number of external inputs of the Unit.
Number of external outputs	The number of external outputs of the Unit.
Maximum pulse output speed	The maximum pulse output speed.
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Only synchronous I/O refreshing method is available. In this table, the following abbreviation is used. Sync: Synchronous I/O refreshing

● Data List

Model	Unit configuration data							Summary specifications					
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of channels	Number of external inputs	Number of external outputs	Maximum pulse output speed	I/O refreshing method	Remarks
NX-PG0122	0.90	20	NX bus	70	12	18/14	1/1	1 (PNP)	2 (PNP)	1 (PNP)	500 kHz	Sync	Open collector output

1-6 System Units

The following shows the System Units data.

1-6-1 Additional NX Unit Power Supply Unit

● Items in the Summary Specifications

Item	Description
Rated power supply voltage	The rated voltage that is supplied to the Unit.
NX Unit power supply capacity	The amount of power that the Unit can supply to the NX Units.

● Data List

Model	Unit configuration data							Summary specifications	
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Rated power supply voltage	NX Unit power supply capacity*1
NX-PD1000	0.45	No consumption	No supply	65	12	0/0	0/0	24 VDC	10 W

*1. The NX Unit power supply capacity is restricted by the temperature or installation orientation. For details, refer to *A-1 NX Unit Power Supply Capacity* on page A-2.

1-6-2 Additional I/O Power Supply Unit

● Items in the Summary Specifications

Item	Description
Rated power supply voltage	The rated voltage of the I/O power supply that is supplied to the Unit.
Maximum current of I/O power supply	The maximum value of the current that can be supplied to the NX Units from the I/O power supply to be connected to the Unit through the NX bus connectors.

● Data List

Model	Unit configuration data						Summary specifications	
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Rated power supply voltage	Maximum current of I/O power supply
NX-PF0630	0.45	10	65	12	0/0	0/0	5 to 24 VDC	4 A
NX-PF0730								10 A

1-6-3 I/O Power Supply Connection Unit

● Items in the Summary Specifications

Item	Description
Number of I/O power supply terminals	The type (IOV/IOG) and number of I/O power supply terminals of the Unit.
Current capacity of I/O power supply terminal	The current capacity of the I/O power supply terminals of the Unit.

● Data List

Model	Unit configuration data							Summary specifications	
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of I/O power supply terminals	Current capacity of I/O power supply terminal
NX-PC0020	0.45	No consumption	NX bus	65	12	0/0	0/0	IOV: 16 terminals	4 A/terminal
NX-PC0010								IOG: 16 terminals	
NX-PC0030								IOV: 8 terminals IOG: 8 terminals	

1-6-4 Shield Connection Unit

● Items in the Summary Specifications

Item	Description
Number of shield terminals	The number of terminals of the SHLD terminal of the Unit.

● Data List

Model	Unit configuration data							Summary specifications
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of shield terminals
NX-TBX01	0.45	No consumption	No supply	65	12	0/0	0/0	14 terminals

1-7 Safety Control Units

The following shows the Safety Control Units data.

1-7-1 Safety CPU Unit

● Items in the Summary Specifications

Item	Description
Maximum number of safety I/O points	This is the number of safety I/O points that the Unit can control.
Program capacity	This is the capacity of the user program in the Unit.
Number of safety master connections	This is the number of safety master connections that the Unit can have through Safety over EtherCAT (FSoE). You can connect one Safety I/O Unit for each safety master connection.
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Only Free-Run refreshing method is available. In this table, the following abbreviation is used. Free: Free-Run refreshing

● Data List

Model	Unit configuration data							Summary specifications			
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Maximum number of safety I/O points	Program capacity	Number of safety master connections	I/O refreshing method
NX-SL3300	0.90	No consumption	No supply	75	30	0/0 to 512/512	2/2	256 points	512 KB	32	Free
NX-SL3500						0/0 to 1024/1024		1024 points	2048 KB	128	

1-7-2 Safety Input Units

● Items in the Summary Specifications

Item	Description
Number of safety input points	This is the number of safety input points on the Unit.
Number of test output points	This is the number of test output points on the Unit. The test output points are used with the safety input terminals.
Internal I/O common	This is the polarity that the Unit uses to connect to input devices. There are models with NPN and PNP connections.
Rated input voltage	This is the rated input voltage of the Unit.
OMRON Special Safety Input Devices	This tells whether the Unit supports the connection of OMRON Special Safety Input Devices (D40A Non-contact Door Switches, E3FS Single Beam Safety Sensors, etc.). In this table, the following abbreviations are used. Yes: Can be connected No: Cannot be connected
Number of safety slave connections	This is the number of safety slave connections that the Unit can have through Safety over EtherCAT (FSoE). You can connect to one Safety CPU Unit for each safety slave connection.
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Only Free-Run refreshing method is available. In this table, the following abbreviation is used. Free: Free-Run refreshing

● Data List

Model	Unit configuration data								Summary specifications						
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	Input current [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of safety input points	Number of test output points	Internal I/O common	Rated input voltage	OMRON Special Safety Input Devices	Number of safety slave connections	I/O refreshing method
NX-SIH400	0.70	20	4.5	NX bus	70	12	8/8	2/2	4 points	2 points	PNP	24 VDC	Yes	1	Free
NX-SID800	0.75		3.0				10/10		8 points				No		

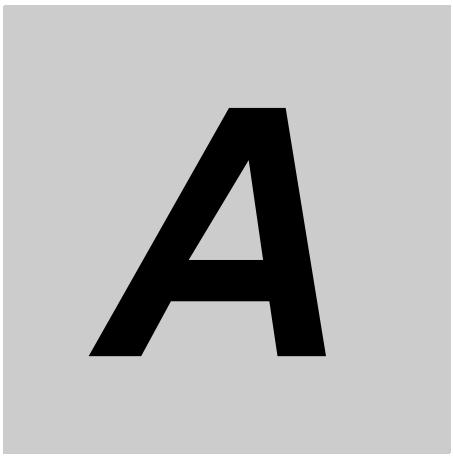
1-7-3 Safety Output Units

● Items in the Summary Specifications

Item	Description
Number of safety output points	This is the number of safety output points on the Unit.
Internal I/O common	This is the polarity that the Unit uses to connect to input devices. There are models with NPN and PNP connections.
Maximum load current	This is the maximum load current for outputs on the Unit. A specification is given for each output and each Unit.
Rated voltage	This is the rated voltage of the outputs on the Unit.
Number of safety slave connections	This is the number of safety slave connections that the Unit can have through Safety over EtherCAT (FSoE). You can connect to one Safety CPU Unit for each safety slave connection.
I/O refreshing method	The I/O refreshing methods that are used by the Unit. Only Free-Run refreshing method is available. In this table, the following abbreviation is used. Free: Free-Run refreshing

● Data List

Model	Unit configuration data							Summary specifications					
	NX Unit power consumption [W]	Current consumption from I/O power supply [mA]	I/O power supply method	Weight [g]	Width [mm]	I/O data size [byte]	Number of I/O entry mappings	Number of safety output points	Internal I/O common	Maximum load current	Rated voltage	Number of safety slave connections	I/O refreshing method
NX-SOD400	0.75	60	NX bus	65	12	8/8	2/2	4 points	PNP	0.5 A/point, 2 A/Unit	24 VDC	1	Free
NX-SOH200	0.70	40						2 points		2.0 A/point, 4.0 A/Unit at 40°C, 2.5 A/Unit at 55°C			



Appendices

This section describes NX Unit power supply capacity.

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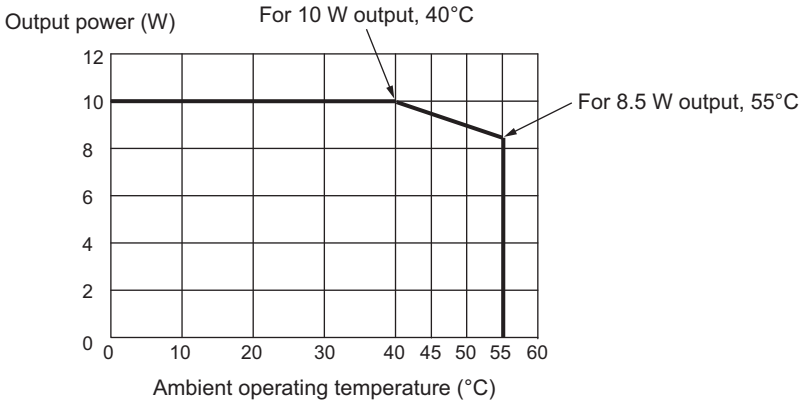
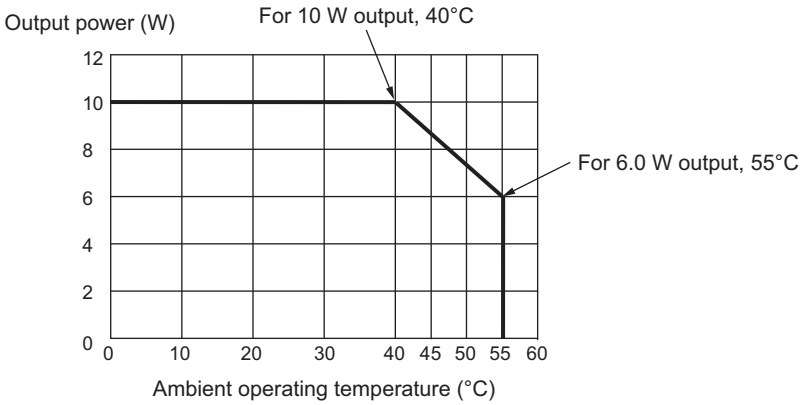
A-1 NX Unit Power Supply Capacity

This section shows the specifications of the power capacity of the NX Unit that supplies NX Unit power.

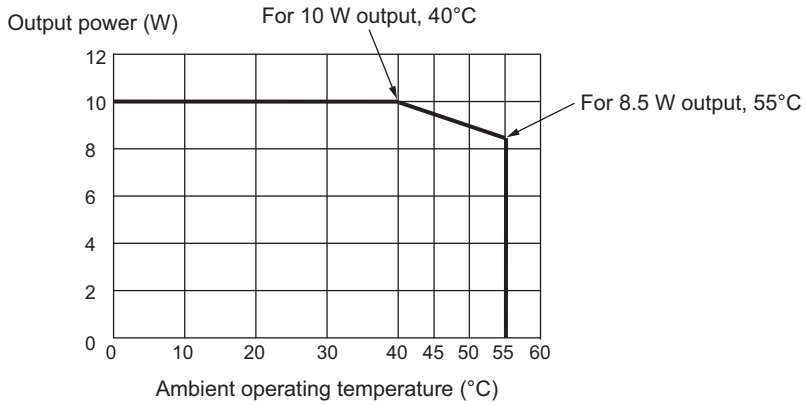
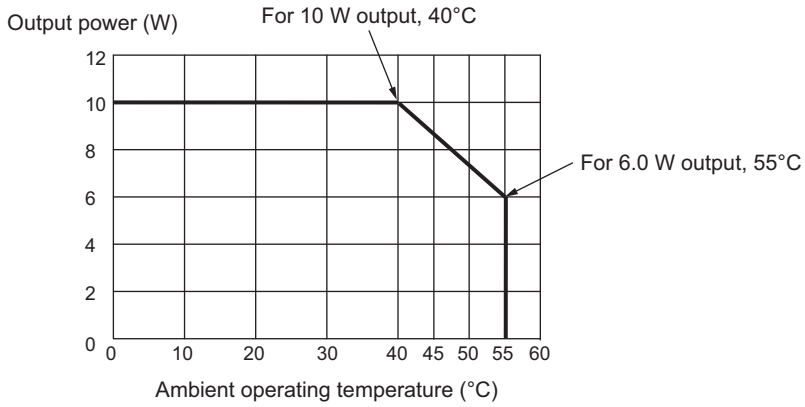
A-1-1 EtherCAT Coupler Unit

● NX-ECC201/ECC202

Item	Specification
NX Unit power supply capacity	10 W max. Refer to *Installation orientation and restrictions* for details.
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: • For upright installation  • For any installation other than upright 

A-1-2 Additional NX Unit Power Supply Unit

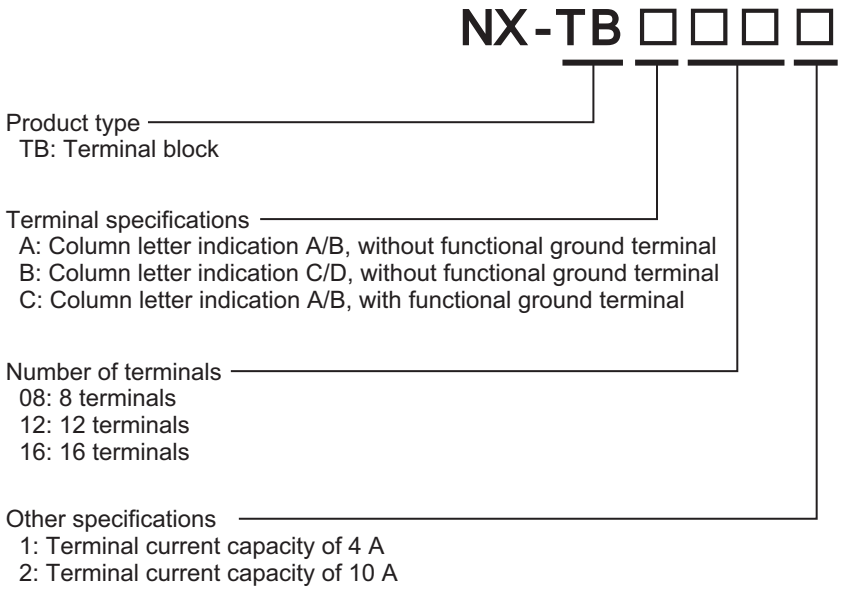
● NX-PD1000

Item	Specification
NX Unit power supply capacity	10 W max. Refer to *Installation orientation and restrictions* for details.
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: • For upright installation  • For any installation other than upright 

A-2 List of Terminal Block Models

A-2-1 Model Notation

The Terminal Block models are assigned based on the following rules.


NX-TB □□□□
Product type
TB: Terminal block
Terminal specifications
A: Column letter indication A/B, without functional ground terminal
B: Column letter indication C/D, without functional ground terminal
C: Column letter indication A/B, with functional ground terminal
Number of terminals
08: 8 terminals
12: 12 terminals
16: 16 terminals
Other specifications
1: Terminal current capacity of 4 A
2: Terminal current capacity of 10 A

A-2-2 List of Terminal Block Models

The following table shows a list of Terminal Blocks.

Terminal Block model	Number of terminals	Ground terminal	Terminal current capacity
NX-TBA081	8	Not provided	4 A
NX-TBA121	12		
NX-TBA161	16		
NX-TBB121	12		
NX-TBB161	16		
NX-TBA082	8		10 A
NX-TBA122	12		
NX-TBA162	16		
NX-TBB122	12		
NX-TBB162	16		
NX-TBC082	8	Provided	
NX-TBC162	16		

Note When you purchase a Terminal Block, purchase an NX-TB□□□2.

A-2-3 Applicable Terminal Blocks for Each Unit Model

The following indicates the Terminal Blocks that are applicable to each Unit.

Unit model number	Terminal Block			
	Model	Number of terminals	Ground terminal	Current capacity
NX-ECC201	NX-TBA081	8	Not provided	4 A
	NX-TBC082		Provided	10 A
NX-ECC202	NX-TBC082			10 A
NX-ID3□□□	NX-TBA121	12	Not provided	4 A
	NX-TBA122			10 A
NX-ID4□□□	NX-TBA161	16		4 A
	NX-TBA162			10 A
NX-ID5□□□	NX-TBA161			4 A
	NX-TBA162			10 A
NX-IA3117	NX-TBA081	8		4 A
	NX-TBA082			10 A
NX-OD2□□□	NX-TBA081			4 A
	NX-TBA082			10 A
NX-OD3□□□	NX-TBA121	12		4 A
	NX-TBA122			10 A
NX-OD4□□□	NX-TBA161	16		4 A
	NX-TBA162			10 A
NX-OD5□□□	NX-TBA161			4 A
	NX-TBA162			10 A
NX-OC2□□□	NX-TBA081	8		4 A
	NX-TBA082			10 A
NX-AD2□□□	NX-TBA081			4 A
	NX-TBA082			10 A
NX-AD3□□□	NX-TBA121	12		4 A
	NX-TBA122			10 A
NX-AD4□□□	NX-TBA161	16		4 A
	NX-TBA162			10 A
NX-DA2□□□	NX-TBA081	8		4 A
	NX-TBA082			10 A
NX-DA3□□□	NX-TBA121	12		4 A
	NX-TBA122			10 A
NX-TS21□□	You cannot replace the Terminal Blocks.			
NX-TS31□□	Refer to the *NX-series Analog I/O Units User's Manual* (Cat No. W522) for details.			
NX-TS22□□	NX-TBA161	16	Not provided	4 A
	NX-TBA162			10 A
NX-TS32□□	NX-TBA161/TBB161			4 A
	NX-TBA162/TBB162			10 A
NX-EC0122	NX-TBA161			4 A
	NX-TBA162			10 A
NX-EC0222	NX-TBA121	12		4 A
	NX-TBA122			10 A
NX-EC0142	NX-TBA121/TBB121			4 A
	NX-TBA122/TBB122			10 A
NX-ECS112	NX-TBA121			4 A
	NX-TBA122			10 A

Unit model number	Terminal Block			
	Model	Number of terminals	Ground terminal	Current capacity
NX-ECS212	NX-TBA121	12	Not provided	4 A
	NX-TBA122			10 A
NX-PG0122	NX-TBA161	16		4 A
	NX-TBA162			10 A
NX-PD1000	NX-TBA081	8		4 A
	NX-TBC082		Provided	10 A
NX-PF0630	NX-TBA081		Not provided	4 A
	NX-TBA082			10 A
NX-PF0730	NX-TBA082			10 A
NX-PC□□□□	NX-TBA161	16		4 A
	NX-TBA162			10 A
NX-TBX01	NX-TBA161			4 A
	NX-TBC162		Provided	10 A
NX-SL3300	No Terminal Blocks			
NX-SL3500	No Terminal Blocks			
NX-SIH400	NX-TBA081	8	Not provided	4 A
	NX-TBA082			10 A
NX-SID800	NX-TBA161	16		4 A
	NX-TBA162			10 A
NX-SOD400	NX-TBA081	8		4 A
	NX-TBA082			10 A
NX-SOH200	NX-TBA081			4 A
	NX-TBA082			10 A

Precautions for Correct Use

You can mount either NX-TB□□□1 or NX-TB□□□2 Terminal Blocks to the Units that the current capacity specification of the terminals is 4 A or less.

However, even if you mount the NX-TB□□□2 Terminal Block, the current specification does not change because the current capacity specification of the terminals on the Units is 4 A or less.

A-3 Version Information

This section describes the relationship between the unit versions of each Unit and the EtherCAT Coupler Units, CPU Units, and Sysmac Studio versions, and the specification changes for each unit version of each Unit.

A-3-1 Relationship between the Unit Versions of Each Unit and the EtherCAT Coupler Units, CPU Units, and Sysmac Studio Versions

The relationship between the unit versions of each Unit and the EtherCAT Coupler Units, CPU Units, and Sysmac Studio versions are shown below.

With the combinations of the unit versions/versions shown below, you can use all the functions that are supported by each unit version of each Unit model.

Use the unit versions/versions that correspond to the NX Unit models and the unit versions or the later/higher versions.

You cannot use the specifications that were added or changed for the relevant NX Unit models and the unit versions unless you use the corresponding unit versions/versions.

Refer to the user's manuals for the specific Units for the functions that were added or changed for each unit version update of the Communications Coupler Units or NX Units.

Refer to *A-3-2 Support Functions of the Communications Coupler Units and Restrictions on the NX Units* on page A-12 for information on the relationship between the support functions of the Communications Coupler Units and restrictions on the NX Units.

● Communications Coupler Units

NX Units		Corresponding unit versions/versions		
Model	Unit version	EtherCAT Coupler Units NX-ECC201/ECC202	NJ-series CPU Units NJ501-□□□□/ NJ301-□□□□	Sysmac Studio
NX-ECC201	Ver.1.2	–	Ver.1.07	Ver.1.08
	Ver.1.1	–	Ver.1.06	Ver.1.07
	Ver.1.0	–	Ver.1.05	Ver.1.06
NX-ECC202	Ver.1.2	–	Ver.1.07	Ver.1.08

● Digital I/O Units

NX Units		Corresponding unit versions/versions		
Model	Unit version	EtherCAT Coupler Units NX-ECC201/ECC202	NJ-series CPU Units NJ501-□□□□/ NJ301-□□□□	Sysmac Studio
NX-ID3317	Ver.1.0	Ver.1.0	Ver.1.05	Ver.1.06
NX-ID3343				
NX-ID3344		Ver.1.1	Ver.1.06 *1	Ver.1.07
NX-ID3417		Ver.1.0	Ver.1.05	Ver.1.06
NX-ID3443				
NX-ID3444		Ver.1.1	Ver.1.06 *1	Ver.1.07
NX-ID4342		Ver.1.0	Ver.1.05	Ver.1.06
NX-ID4442				
NX-ID5342				
NX-ID5442				
NX-IA3117				Ver.1.08
NX-OD2154		Ver.1.1	Ver.1.06 *1	Ver.1.07
NX-OD2258				
NX-OD3121		Ver.1.0	Ver.1.05	Ver.1.06
NX-OD3153				
NX-OD3256				
NX-OD3257				
NX-OD4121				
NX-OD4256				
NX-OD5121				
NX-OD5256				
NX-OC2633				
NX-OC2733				Ver.1.08

*1 The instructions for time stamp refreshing are supported by CPU Units with unit version 1.06 or later. If you do not use instructions for time stamp refreshing, you can use version 1.05. Refer to the *NJ-series Instructions Reference Manual* (Cat. No. W502-E1-08 or later) for details on the instructions for time stamp refreshing.

● Analog I/O Units

NX Units		Corresponding unit versions/versions		
Model	Unit version	EtherCAT Coupler Units NX-ECC201/ECC202	NJ-series CPU Units NJ501-□□□□/ NJ301-□□□□	Sysmac Studio
NX-AD2203	Ver.1.0	Ver.1.0	Ver.1.05	Ver.1.06
NX-AD2204				
NX-AD2208				
NX-AD2603				
NX-AD2604				
NX-AD2608				
NX-AD3203				
NX-AD3204				
NX-AD3208				
NX-AD3603				
NX-AD3604				
NX-AD3608				
NX-AD4203				
NX-AD4204				
NX-AD4208				
NX-AD4603				
NX-AD4604				
NX-AD4608				
NX-DA2203				
NX-DA2205				
NX-DA2603				
NX-DA2605				
NX-DA3203				
NX-DA3205				
NX-TS2101	Ver.1.0			
	Ver.1.1			Ver.1.08
NX-TS2102	Ver.1.1			
NX-TS2104	Ver.1.1			
NX-TS2201	Ver.1.0			Ver.1.06
	Ver.1.1			Ver.1.08
NX-TS2202	Ver.1.1			
NX-TS2204	Ver.1.1			
NX-TS3101	Ver.1.0			Ver.1.06
	Ver.1.1			Ver.1.08
NX-TS3102	Ver.1.1			
NX-TS3104	Ver.1.1			
NX-TS3201	Ver.1.0			Ver.1.06
	Ver.1.1			Ver.1.08
NX-TS3202	Ver.1.1			
NX-TS3204	Ver.1.1			

● Position Interface Units

NX Units		Corresponding unit versions/versions		
Model	Unit version	EtherCAT Coupler Units NX-ECC201/ECC202	NJ-series CPU Units NJ501-□□□□/ NJ301-□□□□	Sysmac Studio
NX-EC0122	Ver.1.0	Ver.1.1*1	Ver.1.06*1	Ver.1.07 *1
	Ver.1.1			Ver.1.08
NX-EC0222	Ver.1.0			Ver.1.07
	Ver.1.1			Ver.1.08
NX-EC0142	Ver.1.0			Ver.1.07
	Ver.1.1			Ver.1.08
NX-ECS112	Ver.1.0			Ver.1.07
	Ver.1.1			Ver.1.08
NX-ECS212	Ver.1.0			Ver.1.07
	Ver.1.1			Ver.1.08
NX-PG0122	Ver.1.0	Ver.1.0	Ver.1.05	Ver.1.06
	Ver.1.1			Ver.1.08

*1 You can use the following versions if the time stamp refreshing function is not used.
EtherCAT Coupler Unit: Version 1.0
NJ-series CPU Units: Version 1.05
Sysmac Studio: Version 1.06

● System Units

NX Units		Corresponding unit versions/versions		
Model	Unit version	EtherCAT Coupler Units NX-ECC201/ECC202	NJ-series CPU Units NJ501-□□□□/ NJ301-□□□□	Sysmac Studio
NX-PD1000	Ver.1.0	Ver.1.0	Ver.1.05	Ver.1.06
NX-PF0630				
NX-PF0730				Ver.1.08
NX-PC0020				Ver.1.06
NX-PC0010				
NX-PC0030				
NX-TBX01				

● Safety Control Units

NX Units		Corresponding unit versions/versions		
Model	Unit version	EtherCAT Coupler Units NX-ECC201/ECC202	NJ-series CPU Units NJ501-□□□□/ NJ301-□□□□	Sysmac Studio
NX-SL3300	Ver.1.0	Ver.1.1	Ver.1.06	Ver.1.07
NX-SL3500		Ver.1.2	Ver.1.07	Ver.1.08
NX-SIH400		Ver.1.1	Ver.1.06	Ver.1.07
NX-SID800				
NX-SOD400				
NX-SOH200				

A-3-2 Support Functions of the Communications Coupler Units and Restrictions on the NX Units

Some functions that were added or changed for each unit version of the Communications Coupler Units are restricted depending on the models of the NX Units and unit versions.

The following is a list of restrictions on NX Units for the functions.

Refer to the user's manual of the Communications Coupler Unit for details on the functions listed below.

● EtherCAT Coupler Units

Function		Change or addition	Models of NX Units and unit versions					
			Digital I/O Units	Analog Input Units/Analog Output Units	Temperature Input Units	Position Interface Units	System Units	Safety Control Units
Restarting	Restarting a specified NX Unit *1	Addition	Ver.1.0	Ver.1.0	Ver.1.1	Ver.1.1	Ver.1.0	Not supported
I/O checking		Addition	Ver.1.0	Ver.1.0	Ver.1.0	Ver.1.0 *2	Ver.1.0	Not supported
Monitoring total power-ON time		Addition	Ver.1.0	Ver.1.0	Ver.1.1	Ver.1.1	Ver.1.0	Not supported
Restarting after Clear All Memory operation	Restarting only the specified NX Unit after performing the Clear All Memory operation for a specified NX Unit	Change	Ver.1.0	Ver.1.0	Ver.1.1	Ver.1.1	Ver.1.0	Not supported
Restarting after transferring Unit operation settings	Restarting the NX Unit to which the Unit operation settings were transferred when you transfer the settings to a specified NX Unit *2	Change	Ver.1.0	Ver.1.0	Ver.1.1	Ver.1.1	Ver.1.0	Not supported
Number of connectable NX Units	63	Change	Ver.1.0	Ver.1.0	Ver.1.0	Ver.1.0	Ver.1.0	Ver.1.0 *3
I/O refreshing method	Time stamp refreshing*4 • Input refreshing with input changed time • Output refreshing with specified time stamp	Addition	Model on time stamp refreshing Ver.1.0	Not supported	Not supported	Not supported	Not supported	Not supported

*1. A CPU Unit with unit version 1.07 or later is required to specify an NX Unit with the restart instruction. If you do not specify an NX Unit with the restart instruction, you can use version 1.05. Refer to the *NJ-series Instructions Reference Manual* (Cat. No. W502-E1-09 or later) for details on specifying an NX Unit with the restart instruction.

*2. When the MC Function Module is used, use the MC Test Run and axis status monitor (MC monitor table) functions of the Sysmac Studio to check the wiring.

*3. Only one Safety CPU Unit can be connected to the EtherCAT network.

*4. The instructions for time stamp refreshing are supported by CPU Units with unit version 1.06 or later. If you do not use instructions for time stamp refreshing, you can use version 1.05. Refer to the *NJ-series Instructions Reference Manual* (Cat. No. W502-E1-08 or later) for details on the instructions for time stamp refreshing.

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   (iv) Systems, machines and equipment that could present a risk to life or property. Please know and observe all prohibitions of use applicable to this Product.
   NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON'S PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
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